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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,934	08/15/2001	Yuu Ishii	14998.280	1135

7590

05/21/2003

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EXAMINER

KIM, RICHARD H

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/929,934

Applicant(s)

ISHII ET AL.

Examiner

Richard H Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 5-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) ____.   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other:  |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shima et al. (US 5,949,934) in view of Kohnke et al. (US 6,221,566 B1).

Referring to claims 1 and 2, Shima et al. discloses a method comprising the steps of forming a grating part (see col. 1, lines 49-50) having a period refractive index distribution (see col. 1, lines 50-51) by irradiating an optical fiber along the longitudinal direction by ultraviolet light (see col. 1, lines 60-62) at a predetermined period (see col. 1, lines 60-61) and carrying out dehydrogenation when necessary (see col. 16, lines 1-12). However, the reference does not disclose carrying out at least one time uniform ultraviolet irradiation processing that irradiates the grating part as a whole with UV light; carrying out at least once heat trimming processing that uniformly heats the grating part as a whole at a predetermined temperature and time in order to adjust optical properties; and carrying out heat aging processing that heats the grating part to a uniform temperature for a predetermined period in order to stabilize the optical properties of the grating part.

Kohnke et al. discloses a method comprising the step of carrying out at least one time uniform UV irradiation processing that irradiates the grating part as a whole with ultraviolet light

(see col. 5, lines 32-36); and carrying out heat aging in order to stabilize the optical properties of the grating part (see col. 5, lines 42-49).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to carry out at least one time uniform ultraviolet irradiation processing that irradiates the grating part as a whole with UV light since one would be motivated to improve the consistency of the grating. Through such a modification, the refractive index of the grating is increased uniformly and for the same duration (see col. 5, lines 36-40), thereby creating a consistent grating. Moreover, it would have been obvious to one having ordinary skill in the art at the time the invention was made to carry out at least once heat trimming processing that uniformly heats the grating part as a whole at a predetermined temperature and time since one would be motivated to improve the accuracy of the process. According to Kohnke et al., "the greater the flood exposure time, the greater the change in refractive index" (see col. 5, lines 38-39). Therefore, such a modification would be equivalent to increasing the exposure time of the optical fiber, and therefore further increase the refractive index. As a result, by doing so, one would be able to precisely adjust the refractive index according to device specifications. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to carry out heat aging in order to stabilize the optical properties of the grating part since one would be motivated by optimum stability. Through heat aging, the refractive index is stabilized through the diffusing of gas (see abstract). As a result, variations of refractive index due to again would be minimized.

Referring to claim 3, Shima et al. and Kohnke et al. disclose the method previously recited. However, the references do not disclose that the uniform ultraviolet irradiation

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processing and the heat trimming processing are repeatedly carried out an arbitrary number of times and in an arbitrary sequence until predetermined optical properties of the optical fiber grating are obtained.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to repeatedly carry out the uniform irradiation processing and the heat trimming processing an out an arbitrary number of times and in an arbitrary sequence until predetermined optical properties of the optical fiber grating are obtained since one would be motivated to adjust the time and sequence accordingly to achieve a desired result, thereby improving the adjustability of the device.

3. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shima et al. and Kohnke et al., in view of Chen et al. (US 6,356,681 B1).

Shima et al. and Kohnke et al. disclose the method previously recited. However, the references do not disclose the method monitoring the transmitted light, reflected light and the reference light of the optical fiber.

Chen et al. discloses a process of monitoring (see col. 3, lines 50-52).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to monitor the transmitted light, reflected light and the reference light of the optical fiber since one would be motivated by optimum precision. By monitoring the transmitted light, reflected light and the reference light of the optical fiber one would be able to adjust the apparatus to respond to the data provided by the monitor, correcting for any errors within the device.

*Response to Arguments*

4. Applicant's arguments filed 30 January 2003 have been fully considered but they are not persuasive.

In response to Applicant's argument that the Chen reference does not disclose the method of trimming processing by heating the grating in order to adjust optical properties, Examiner asserts that optical fiber path length and fiber tension are optical properties, as they deal with the properties of an optical fiber. However, Examiner has removed the Chen et al. reference from the rejection of claims 1-3 in light of new limitation presented by the applicant.

5. Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new ground(s) of rejection.

*Conclusion*

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard H Kim whose telephone number is (703)305-4791. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H Kim can be reached on (703)305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Richard H Kim  
Examiner  
Art Unit 2882

RHK  
May 15, 2003

